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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,523	08/26/2003	Dong-Hoon Kim	21C-0065	4676

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EXAMINER

NEGRON, ISMAEL

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 08/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/648,523

Applicant(s)

KIM ET AL.

Examiner

Ismael Negron

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 24, 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,9-63 and 65-72 is/are pending in the application.
- 4a) Of the above claim(s) 22-57 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-6 and 9-21 is/are allowed.
- 6) ☒ Claim(s) 58-63 and 65-72 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/19/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on May 24, 2006 has been entered. Claims 58, 63, 65 and 66 have been amended. Claim 64 has been cancelled. No claim has been added. Claims 1, 4-6, 9-21, 58-63 and 65-72 are still pending in this application, with claims 1, 58 and 63 being independent.

Claim Objections

2. Claim 4 is objected to because of the following informalities: it depends on canceled Claim 2. Appropriate correction is required.

The applicant is advised that in the comparing the claimed invention with the Prior Art, the Examiner assumed Claim 4 to be dependent on Claim 1.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 58-62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 58 is indefinite as it is not clear what the limitation "*the triangular grooves being linked together*" (line 8) means.

The applicant is advised that in the comparing the claimed invention with the Prior Art, the cited limitations were not given any patentable weight.

5. Claims 59-62 are rejected for their dependency on rejected Claim 58.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 58-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al. (U.S. Pat. Pub. No. 2002/0181223 A1) in view of ISHIKAWA et al. (U.S. Pat. 5,600,455).

7. RYU et al. discloses an illumination device having:

- **a light source**, Figure 4, reference number 19;
- **a light guide plate (as recited in Claim 58)**, Figure 4, reference number 2;

- **the light guide plate having a light incident surface for receiving light from the light source (as recited in Claim 58), as seen in Figure 4;**
- **a first light emission surface (as recited in Claim 58), as seen in figures 6a-7b;**
- **a second light emission surface (as recited in Claim 58), as seen in figures 6a-7b;**
- **the emission surfaces being for emitting light at a first light emission angle with respect to the emission surfaces (as recited in Claim 58), inherent, as light will always exit the surface at some angle;**
- **a light reflection pattern formed on the first light emission surface (as recited in Claim 58), Figure 4, reference number 21;**
- **the reflection pattern being for reflecting light toward the second light emission surface (as recited in Claim 58), inherent, as part of the light hitting the pattern will always be reflected towards the opposite surface;**
- **the light reflection pattern including a plurality of dots (as recited in Claim 58), Figure 4, reference number 21;**
- **each of the dots having a prism pattern on a corresponding dot (as recited in Claim 58), Figure 6a, reference number 212;**

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- **the reflection pattern having different densities of the dots at different areas on the first emission surface (as recited in Claim 59), as seen in Figure 4;**
- **the different densities being such that the closer an area is to the light incident surface, the lower the density of the dots at the area is (as recited in Claim 59), as seen in Figure 4;**
- **the dots have different sizes (as recited in Claim 60), as seen in Figure 4;**
- **the sizes being such that the more distant a dot is from the light incident surface, the larger is the dot (as recited in Claim 60), as seen in Figure 4; and**
- **the dots being formed integrally on the first light emission surface (as recited in Claim 62), paragraph 33, lines 1-4.**

In addition, RYU et al. discloses the shape of the dots (triangular pyramid, cylinder, polyhedron, and the like) being determined by the particular requirements (e.g. brightness level, brightness uniformity, scattering angle, etc.) of a specific application. See paragraphs 42 and 43.

8. RYU et al. discloses all the limitations of the claims, except the prism pattern being elongated in a specific direction (as recited in Claim 58), the dots having a cross-sectional profile of triangular grooves (as recited in Claim 58), or the protrusion having substantially identical size with the number of protrusions per unit area decreasing as the distance to the incident surface increases (as recited in Claim 70).

9. ISHIKAWA et al. discloses an illumination device having:

- **a light source**, Figure 10, reference number 5;
- **a light guide plate (as recited in Claim 58)**, Figure 10, reference number 6;
- **the light guide plate having a light incident surface for receiving light from the light source (as recited in Claim 58)**, as seen in Figure 10;
- **a transparent member**, Figure 7, reference number 1;
- **the transparent member having a plurality of prisms**, Figure 7, reference number 10;
- **the prisms having a cross-sectional profile of triangular grooves**, Figure 7, reference number 11.

10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a prism pattern elongated in a specific direction (as recited in Claim 58) to adjust the quantity of light and/or scattering angle to achieve a desired luminance level and luminance uniformity necessitated by the specific requirements of a particular application, as suggested by RYU et al. (paragraphs 42 and 43).

11. Regarding the dots having a cross-sectional profile of triangular grooves (as recited in Claim 58), it would have been obvious to one of ordinary skill in the art at the time the invention was made to use such cross-sectional profile for the dots, since the Examiner Takes Official Notice of such structure being old and well known in the art, as evidenced by ISHIKAWA et al.. One would have being motivated to achieve a desired

brightness and uniformity of the emitted light, as per the teachings of RYU et al. (paragraphs 42 and 43).

12. Regarding the number of protrusions per unit area, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the number of protrusions per unit area based on the distance from the light incident surface (as recited in claims 67-72), since the Examiner Takes Official Notice of such arrangements being old and well known in the art. One would have being motivated to increase the brightness and uniformity of the emitted light, as per the teachings of RYU (see paragraphs 43 and 44).

13. Claims 63, 65, 67-70 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over RYU et al. (U.S. Pat. Pub. No. 2002/0181223 A1) in view of ISHIKAWA et al. (U.S. Pat. 5,600,455).

14. RYU et al. discloses an light guide plate having:

- **a light incident surface for receiving light from a light source (as recited in Claim 63), as seen in Figure 4;**
- **a first light emission surface (as recited in Claim 63), as seen in figures 6a-7b;**
- **a second light emission surface (as recited in Claim 63), as seen in figures 6a-7b;**

- **the emission surfaces being for emitting light (as recited in Claim 63), inherent, as light will always exit the surface at some angle;**
- **a plurality of protrusions formed on the first light emission surface (as recited in Claim 63), Figure 4, reference number 21;**
- **the protrusion having a geometrically regular pattern (as recited in Claim 63), as seen in Figure 6a;**
- **the density of the geometrically regular pattern being different according to the distance from a light source (as recited in Claim 67), as seen in Figure 4;**
- **the density of the protrusions decreasing with the distance to a light source (as recited in Claim 68), as seen in Figure 4;**
- **the protrusions having different sizes (as recited in Claim 69), as seen in Figure 4;**
- **the size of the protrusions increasing with the distance from a light source (as recited in Claim 69), as seen in Figure 4;**
- **the protrusions having substantially identical sizes (as recited in Claim 70), as evidenced by paragraph 43, lines 6-11;**
- **the number of protrusions per unit area decreasing with the distance to a light source (as recited in Claim 70), as evidenced by paragraph 43, lines 6-11;**
- **the geometrically regular pattern being a plurality of fine structures (as recited in claims 71 and 72), as seen in Figure 6a;**

- **the fine structures being link together (as recited in Claim 72),**
as seen in Figure 6a.

In addition, RYU et al. discloses the shape of the dots (triangular pyramid, cylinder, polyhedron, and the like), and its height/depth being determined by the particular requirements (e.g. brightness level, brightness uniformity, scattering angle, etc.) of a specific application. See paragraphs 42 and 43.

15. RYU et al. discloses all the limitations of the claims, except:

- the geometrically regular pattern being a plurality of microgrooves (as recited in Claim 63);
- the micro grooves being linked along a boundary of the protrusions (as recited in Claim 65),
- the depth of each microgrooves being different (as recited in Claim 66);
- the fine structures having a different height (as recited in Claim 71).

16. ISHIKAWA et al. discloses an illumination device having:

- **a light source**, Figure 10, reference number 5;
- **a light guide plate (as recited in Claim 58)**, Figure 10, reference number 6;
- **the light guide plate having a light incident surface for receiving light from the light source (as recited in Claim 58), as seen in Figure 10;**
- **a transparent member**, Figure 7, reference number 1;

- **the transparent member having a plurality of prisms**, Figure 7, reference number 10;
- **the prisms having a cross-sectional profile of triangular grooves**, Figure 7, reference number 11.

17. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use microgrooves as the geometrically regular pattern (as recited in Claim 63), such microgrooves being linked along a boundary of the protrusions (as recited in Claim 65), since the Examiner Takes Official Notice of such microgrooves being old and well known in the art, as evidenced by ISHIKAWA et al.. One would have being motivated to achieve a desired brightness and uniformity of the emitted light, as per the teachings of RYU et al. (paragraphs 42 and 43).

18. Regarding the microgrooves having different height/depth, it would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the height or depth of the microgrooves to achieve a desired brightness and uniformity of the emitted light, as per the teachings of RYU et al. (paragraphs 42 and 43).

Allowable Subject Matter

19. The indicated allowability of claim 64 (subject matter not presented in claim 63) is withdrawn in view of the newly applied reference to ISHIKAWA et al., as previous sections 13-17.

20. Claims 1, 4-6 and 9-21 are allowed.

21. The following is a statement of reasons for the indication of allowable subject matter:

Applicant teaches a light guide plate having a first and second light emission surfaces, and a light-reflecting pattern formed on the first emission surface. The pattern includes a plurality of dots for reflecting light from the first surface toward the second surface, such reflected light exiting the second surface at a greater angle than light emitted by the first surface. Each dot having light reflecting surfaces elongated in a selected direction, with adjacent light reflecting surfaces meeting each other at the elongated edges to form an angle between the adjacent reflecting surfaces.

No prior art was found teaching individually, or suggesting in combination, all of the features of the applicants' invention, specifically the dots having elongated light reflecting surfaces, with adjacent light reflecting surfaces meeting each other at the elongated edges to form an angle between the adjacent reflecting surfaces.

Response to Arguments

22. Applicant's arguments filed January 10, 2006 have been considered but are moot in view of the new grounds of rejection presented in sections 6-17, above.


Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ismael Negrón whose telephone number is (571) 272-2376. The examiner can normally be reached on Monday-Friday from 9:00 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea, can be reached on (571) 272-2378. The facsimile machine number for the Art Group is (571) 273-8300.

24. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, go to <http://pair-direct.uspto.gov>. Should you have questions on access to Private PAIR system, contact the Electronic Business Center (EBC) toll-free at 866-217-9197.


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